

## NOTES ON BATOID FISHES.

BY HENRY W. FOWLER.

The ray-like fishes contained in the collection of the Academy of Natural Sciences of Philadelphia are listed in this paper.

## 1. SOME PREOCCUPIED NAMES.

In looking over the literature on this subject a number of names were found to be preoccupied, which are not represented in our collection by specimens, and for them I have substituted the following:

RAJA MONTAGUI nom. sp. nov. For *Raia maculata* Montagu, Mem. Wern. Soc., II, 1811-16, p. 426, preoccupied by *Raja maculata* Shaw, Gen. Zool., VII, 1803, p. 16, which is identical with *Raja torpedo* Linnæus.

RAJA BRACHYUOPS nom. sp. nov. For *Raja brachyura* Günther, Rep. Challenger, Zool., I, 1880, p. 20, Pl. 6, preoccupied by *Raia brachyura* Lafont, Act. Soc. Linn. Bordeaux, XXVIII, 1871, p. 503, Pl. 28.

RAJA BONÆ-SPEIENSIS nom. sp. nov. For *Raja capensis* Müller and Henle, Syst. Besch. Plag., 1838, p. 151, preoccupied by *Raja capensis* Gmelin, Syst. Nat. Linn., 1788, p. 1512, which is identical with *Narke* Kaup.

RAJA STEINDACHNERI nom. sp. nov. For *Raja chilensis* Steindachner, Zool. Jahrb. Suppl., IV, 1898, p. 332, preoccupied by *Raia chilensis* Guichenot, Gay's Hist. Chile, II, 1848, p. 367. This species appears close to *Raja lima* Poeppig.

RAJA AGASSIZI RIBEIROI, nom. sub. sp. nov. For *Raja agassizi* var. *picta* Ribeiro, A Lavoura, Bol. Soc. Agric. Rio Janeiro, 1904, p. 19, preoccupied by *Raja picta* Lacépède, Hist. Nat. Poiss., IV 1803, p. 676.

DISCOTRYGON nom. gen. nov. Type *Discobatis marginipinnis* Maclay and Macleay. For *Discobatis* Maclay and Macleay, Proc. Linn. Soc. N. S. Wales, X, 1885, p. 676, type *Discobatis marginipinnis* Maclay and Macleay, preoccupied by Garman, Proc. U. S. Nat. Mus., 1881, p. 523 for *Discobatidæ*, type *Rhina sinensis* Schneider. (*Δίσκος*, disk; *τρογών*, *Trygon*.)

## 2. LIST OF SPECIES IN THE COLLECTION.

## PRISTIDÆ.

*Pristis perotteti* Muller and Henle.

Several saws, most likely this species, from Bahia, Gulf of Mexico and Surinam.

*Pristis pectinatus* Latham.

Many saws, from near Matamoras, Essequibo River, West Indies and Atlantic Ocean.

## RHINOBATIDÆ.

*Rhynchobatus djeddensis* (Forskål).

One from Padang, Sumatra.

*Rhinobatos rhinobatos* (Linnæus).

(*Rhinobatos columna* Bonaparte, Icon. Faun. Ital., Pesc. III, pt. 2, XIV, XVII, 1835-36, descr., Pl. Italy.)

Cotypes of *R. columna* and dried example from Beirut, Syria. Four examples.

*Rhinobatos leucorhynchus* (Günther).

One from Panama.

*Rhinobatos productus* (Girard).

One from Santa Barbara.

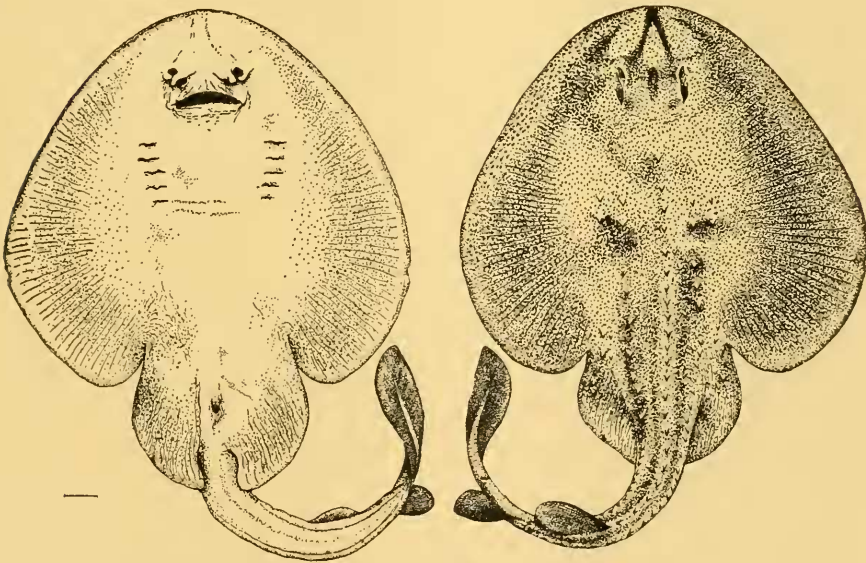


Fig. 1.—*Platyrrhinoidis triseriatus* (Jordan and Gilbert). (Cotype of *Platyrrhina triseriata* Jordan and Gilbert.)

**Platyrrhinoidis triseriatus** (Jordan and Gilbert). Fig. 1.

(*Platyrrhina triseriata* Jordan and Gilbert, Proc. U. S. Nat. Mus., 1880, p. 36. Santa Barbara, Cal.)

Cotype of *P. triseriata*, and two young from Monterey, Cal.

#### RAJIDÆ.

**Raja erinacea** Mitchill.

Ten examples from Castine (Me.), Wood's Holl (Mass.), Sea Isle City and Green Creek (N. J.).

**Raja ocellata** Mitchill.

Five examples from same localities as last.

**Raja radiata** Donovan.

Four egg-cases or "purses" from Manasquan, N. J., may in part refer to this species. All contain embryos, two having very long tails, thus seeming to agree with Goode and Bean's suggestion.<sup>1</sup> Three of egg-cases agree in having tendrils entire, and these contained long-tailed embryos. The other egg had the tendrils coarsely corrugated and contained a short-tailed embryo, which I cannot determine. The eggs are of nearly equal size, their bodies measuring about 2 inches. Another egg, labelled "Corsica," from Rev. R. H. Mossam, contained a fully-developed embryo, unquestionably close to, if not identical with, the present species. It differs from Goode and Bean's figure chiefly in the absence of spines on the posterior pectoral regions. If my determination be correct, the occurrence of this species on the New Jersey coast is interesting, as this will prove the first record. The New Jersey eggs were received from Dr. H. C. Everts.

**Raja eglanteria** Lacépède.

Four examples from Atlantic City, Sea Isle City, Grassy Sound and Green Creek (N. J.).

**Raja binoculara** Girard.

Two from Pacific Grove, Cal.

**Raja stellulata** (Jordan and Gilbert).

(*Raja stellulata* J. G., Proc. U. S. Nat. Mus., 1880, p. 133. Monterey, Cal.)

Cotype of *R. stellulata*.

**Raja oxyrinchus** Linnæus.

Five from Italy.

**Raja macrorynchus** Rafinesque.

Five from Italy.

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<sup>1</sup> *Ocean. Ich.*, 1895, p. 25.

**Raja batis** Linnæus.

One from Italy.

**Raja rostrata** Lacépède.

Six from Italy. This is *R. marginata* Bonaparte.

**Raja clavata** Linnæus.

Seven from Italy.

**Raja brachyura** (Lafont).

One from the Mediterranean in the Bonaparte Coll. This seems to be Lafont's species, and possibly *Raja blanda* Holt may be identical.

**Raja punctata** Risso.

Four from Italy. Wrongly identified by Bonaparte with *R. batis* L.

**Raja rhomboidalis** Tilesius.

Nine examples from Italy. Following Blainville's suggestion,<sup>2</sup> the account by Tilesius is very likely identical with that of Delaroche. Possibly *R. osbeckii* Walbaum<sup>3</sup> = *R. machuelo* W.<sup>3</sup> = *R. hispanica* Schneider<sup>4</sup> may be older synonyms?

**Raja miraletus** Linnæus.

Twelve examples from Italy.

**Raja quadrimaculata** Risso.

Two from Italy.

**Raja circularis** Conch.

(*R. falsavela* Bonaparte, Icon. Faun. Ital., Pesc. III, pt. 2, XXVI, 1839, descr., Pl. Italy.)

Type of *R. falsavela* in poor condition.

**Raja radula** Delaroche.

One from Italy.

**Raja meerdervoortii** Bleeker.

Two from Hakodate.

**Psammobatis brevicaudatus** Cope. Fig. 2.

(Proc. Am. Philos. Soc. Phila., XVII, 1877, p. 48. Bay of Pecosmayo, Peru.)

Type of *P. brevicaudatus*.

<sup>2</sup> *Faun. Franc.*, Vert., 1825, p. 26.

<sup>3</sup> *Pet. Arted. Gen. Pisc.*, III, 1792, p. 532 (based on Osbeck).

<sup>4</sup> *Syst. Ich. Bloch.*, 1801, p. 369 (based on Osbeck).

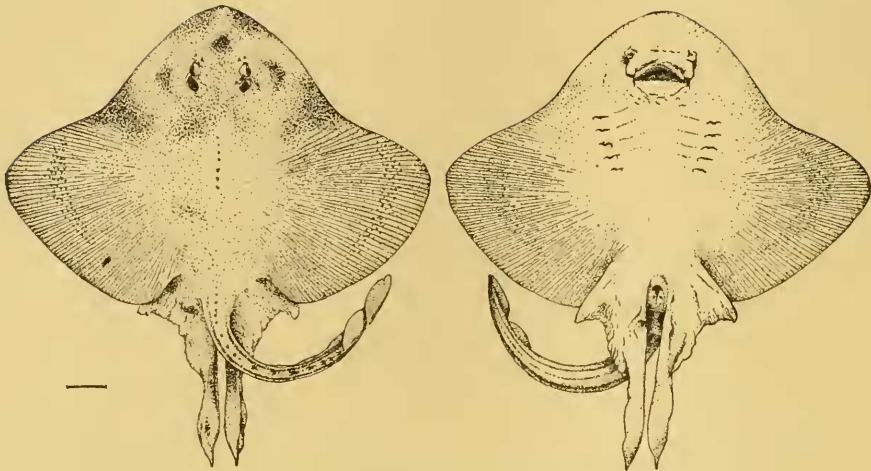


Fig. 2.—*Psammobatis brevicaudatus* Cope. (Type.)

#### NARCOBATIDÆ.

*Narcobatus torpedo* (Linnaeus).

Ten from Italy.

EUNARCE subgen. nov.

Type *Torpedo narke* Risso.

Differs from subgenus *Narcobatus* in having the spiracle fringes as rudimentary papillæ, while in subgenus *Tetronarce* they are entirely absent.

(*Eö*, genuine; *ναρκη*, *Narke*, the ancient name of the typical species.)

*Narcobatus narke* (Risso).

Nine from Italy. In this case Risso and Rafinesque are synchronous, and I allow the former's name, as it is on an earlier page, besides having gained usage.

*Narcobatus nobiliana* (Bonaparte).

(*Torpedo nobiliana* Bon., Icon. Faun. Ital., Pesc. III, pt. 2, XII, 1835, descr., Pl. Italy.)

Cotypes of *T. nobiliana*. Twenty-three examples.

*Narcobatus occidentalis* (Storer).

Four from Pacific Grove and Soquel, Cal. Storer's figure shows a very large first dorsal, and its origin about over first fourth in entire ventral length, so that hind margins of both fins are on a line. His description says "it is situated at the posterior portions of the pectorals, one half of its base being posterior to those fins." Goode's figure

shows an example from Wood's Holl with first dorsal origin well posterior, or about opposite posterior basal fourth of ventral. Jordan and Evermann pointed out differences between Atlantic and Pacific forms from North America, stating the former to be nearly uniform black, rarely spotted, and having the first dorsal over middle of ventrals, all of which can be found in my examples noted above from the Pacific. At the same time they reproduce Goode's figure and my Soquel specimen, the former certainly more in agreement with some of my Pacific examples, and the latter approaching nearer that of Storer. The question of spotted coloration does not seem to me reliable.

**Narcine brasiliensis** (Olfers).

One from Key West.

**DASYATIDÆ.**

**Urolophus halleri** Cooper.

One from San Pedro, Cal.

**Urolophus nebulosus** Garman.

One from San Diego, Cal.

**Urolophus jamaicensis** (Cuvier).

Two, from Florida and Cuba.

**Urolophus mundus** (Gill).

Three young from Panama.

**Tæniura lymma** (Forskål).

One from Padang, Sumatra.

**Dasyatis uarnak** (Forskål).

Three from Padang, Sumatra (one now in Stanford University).

**Dasyatis centroura** (Mitchill)?

Young without data, most likely this species.

**Dasyatis aldrovandi** (Risso).

Three tails, probably this species, from the Mediterranean.

**Dasyatis akajei** (Müller and Henle).

Four young from Onomichi, Japan.

**Dasyatis say** (Le Sueur).

Four from Delaware Bay off Green Creek, wrongly thought by me to be *D. centroura*.<sup>5</sup> The rediscovery of the present species in New Jersey is of considerable interest, as it has not before been correctly

<sup>5</sup> *Proc. Acad. Nat. Sci., Phila.*, 1909, p. 407.



identified from there since Le Sueur's time. In 1838 Müller and Henle report one from New York, and in 1882 Garman notes it from the same locality with others from Florida and Brazil. The differences pointed out by the latter, in separating this species from *Trygon hastata* De Kay, do not seem to me to be altogether conclusive that the latter is really a species distinct from the present. My examples seem to cover the alleged points of difference to a great extent. Small examples seem to be entirely smooth, and others have three short rows of spines on middle of disk, when large. In the summer of 1907 I first thought these rays were most likely the present species, but the variation seemed to confuse them with *T. hastata*. The character of a broad fold above and below on the tail may be reliable, but my examples also show three series of tubercles on shoulders, at least the large ones. Others with broad tail folds also show the median vertebral row of thorns distinct and becoming enlarged posteriorly, besides a roughened tail. In fact, I have noted examples which agree with Le Sueur's figure of *Raja say* and De Kay's and Storer's of *Trygon hastata*, and that these are individual variations due to age and sex I have no doubt.

***Dasyatis sabina*** (Le Sueur).

Two from Bayport, Fla., and another without data.

***Dasyatis pastinaca*** (Linnæus).

Ten from Italy and one from Beirut, Syria.

***Dasyatis ujo*** Rafinesque.

(*Trygon brucco* Bonaparte, Icon, Faun. Ital., Pesc. III, pt. 2, VI, 1834, descr., Pl. Italy.)

Cotypes of *T. brucco*, two examples.

PTEROPLATYTRYGON subgen. nov.

Type *Trygon violaceum* Bonaparte.

Disk width much greater than length, front margin broadly convex. No upper tail fold after caudal spines.

From *Hemitrygon* Müller and Henle this differs in the broad disk, obtuse in front, and suggesting *Pteroplatea*. The small snout tip is within a slight emargination of the front edge of the disk.

(Ἠτερόν, fin; πλατύς, broad; τρυγών, *Trygon*.)

***Dasyatis violaceus*** (Bonaparte).

(*Trygon violaceum* Bon., Icon. Faun. Ital., Pesc. III, pt. 2, I, 1832, descr., Pl. Italy.)

Cotypes of *T. violaceum* Bon., two examples.

**Pteroplatea altavela** (Linnæus).

One from Italy.

**Pteroplatea marmorata** Cooper.

One from San Diego, Cal.

#### MYLIOBATIDÆ.

**Myliobatis bovina** G. St. Hilaire.

One from Italy.

**Myliobatis aquila** (Linnæus).

(*M. noctula* Bon., Icon. Faun. Ital., Pesc. III, pt. 2, II, 1833, descr., Pl. Italy.)

Cotype of *M. noctula*, three examples.

**Myliobatis freminvillii** Le Sueur.

Four from Newport, R. I., and Sea Isle City, N. J. One has two caudal spines.

**Myliobatis californicus** Gill.

Young from San Diego, Cal.

**Aëtobatus narinari** (Euphrasen).

One without data.

**Rhinoptera bonasus** (Mitchill).

Beaufort, N. C., and Ocean City, N. J., two examples.

#### MOBULIDÆ.

**Manta birostris** (Walbaum).

Eye of large example from Stone Harbor, N. J.